

**SECTION UC-615****BUBBLER LEVEL CONTROLLER****PART 1 - GENERAL****1.01 SCOPE OF WORK**

The Contractor shall furnish and install a bubbler level controller in the control panel, including all electrical material specified herein or required for a complete installation.

**1.02 RELATED SECTION**

Section UC-600 - Pump Station Electrical Material

Section UC-610 - Pump Station Control Panel

**1.03 QUALITY ASSURANCE**

- A. All electrical materials and equipment shall be new, of recent domestic manufacture, and approved by the Underwriters' Laboratories, Inc. Material or equipment damaged in the course of installation or test shall be replaced or repaired, at the Contractor's sole expense, in a manner meeting with the approval of the Engineer (ie the Chief, Engineering Division, MD-WASD or his representative). Further, said repairs or replacement shall be performed by personnel qualified such that the UL approval will not be lost. The Contractor shall provide satisfactory evidence of these qualifications to the MD-WASD prior to the work being performed.
- B. All electrical material and installation shall comply with the codes and standards listed in Section UC-600

**1.04 SUBMITTALS**

The Contractor shall provide all submittals in accordance with Section UC-600

**PART 2 - PRODUCTS****2.01 LEVEL CONTROLLER**

Level controller shall be microprocessor based with bubbler level controller and float switches backup. It shall measure the depth of water in the wet well and shall have the following characteristics:

- A. Powered by two 120V air compressors that shall not require periodic lubrication. Vibrator diaphragm compressors shall not be used.
- B. Compressors shall be individually mounted and wired to a terminal block for ease of replacement.

- C. Compressors shall operate automatically, controlled by a pressure switch and an automatic alternator.
- D. Compressors are to charge a compressed air tank. Air from the tank shall be sent to the bubbler tube through a filtered flow regulating device and the back pressure in the bubbler tube shall be measured by a pressure transducer to detect water depth.
- E. The liquid level shall be read out directly on a level gauge in terms of feet and inches.
- F. In the event that a compressor is called and fails to charge the air tank, an air compressor failure for that compressor shall be shown and the other called in it's place.
- G. The system shall be designed to detect failures in the bubbler system that would prevent proper operation. Detection of this system failure shall give a visual alarm, energize a dry contact alarm relay for remote indication and automatically switch to a float switches backup system.
- H. Air tank to store air from the compressors and provide air to the flow regulating system. Supply tank pressure gauge and the means to automatically dump any water that might condense in the air tank.
- I. Provide flow regulator and indicator to regulates the flow of air from the air tank to the bubbler tube. It shall provide a minimum of 2000 SCCM ( standard cubic centimeters per min.) of air to the bubbler tube. The system shall include an air filter to prevent the regulator from becoming blocked by dust and back flow valve to prevent any liquid from reaching the air tank or compressors.
- J. The system shall include an automatic purging (blow down) system for keeping the bubbler tube clear of blockages using an air solenoid to vent the entire contents of the air tank to the bubbler tube. The depth measurement shall be frozen during this process to prevent erroneous readings and improper pump calls. The system shall be designed so that the purging process does not over-pressurize the bubbler pressure transducer. The purging process shall be initiated in one of two ways:
  - 1. Periodical purges, with intervals adjustable from 1 to 10 hours.
  - 2. Automatically, if the air flow drops below 50% of nominal flow, or immediately after the controller is power up after a loss of power.
- K. The bubbler level controller shall be Digital Control Corp. Model 11928-3 or approved equal.

### **PART 3 - EXECUTION**

(Not Used)

END OF SECTION